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(54) AN APPARATUS FOR AND METHOD OF PRODUCING PEELED FROZEN TOMATOES

(71) I, ANTONIO TENUTA, of Mongrassano Scalo (Cosenza), Italy, an Italian citizen, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to an apparatus for and a method of producing peeled frozen tomatoes.

It is known that many vegetables, which have a relatively hard consistency for instance potatoes and carriots, may first be peeled and may then be prepared either separately or together with other food to provide what is known as "convenience food". This is possible because of the relatively hard consistency of such vegetables.

The same process could not be used with the tomatoes, as they do not have a sufficiently hard consistency to be suitable for such preparation. Consequently, tomatoes have had to be peeled within a short time of harvesting, or have had to be frozen so as to be preserved and then defrosted to allow cleaning and peeling, after which they may again be frozen.

Such a process is relatively expensive in labour is time consuming, resulting in a relatively high price of frozen peeled tomatoes on the market. This high price is mainly attributable to the defrosting stage and subsequent refreezing, which is costly in terms of the energy used.

According to one aspect of the present invention, there is provided a method of producing peeled frozen tomatoes, comprising the steps of freezing the tomatoes, cleaning the tomatoes by dry-brushing, peeling the tomatoes by abrasion, and refreezing the surfaces of the tomatoes.

Such a method allows frozen peeled tomatoes to be put on the market at a relatively low price.

According to another aspect of the present invention, there is provided an apparatus for performing the method of the invention comprising a freezing device, a machine for dry-brushing connected to the freezing device by first conveyor means, a machine for peeling by abrasion connected to the dry-brushing machine by second conveyor means, and a tunnel arranged to perform re-freezing of the tomato surfaces.

Tomatoes coming from the harvest can be frozen and can be selected and sorted by means of belt conveyors, or by non-mechanized means.

It is thus possible to eliminate the defrosting stage and to reduce substantially the refreezing state in comparison with previously known methods, as the tomatoes are peeled at the frozen stage, i.e. when they are of relatively firm or hard consistency, and re-freezing is limited to making good the relatively small temperature increase during peeling in a small superficial thickness. It is further possible to provide tomatoes which may be to put on the market as frozen tomatoes during the whole year without being restricted to the harvest period. A substantial saving in cost may be achieved to allow the product to compete with the tomatoes prepared in previously known ways. The natural properties of the the tomatoes may be substantially retained and the organic properties and taste need not be altered by additive preservation substances.

The present invention will be further described, by way of example, with reference to the accompanying drawing, which illustrates the steps involved in producing frozen peeled tomatoes.

The drawing illustrates schematically apparatus including a freezing device 1 capable of lowering temperature, for example, to −30°C. A belt conveyor 2 conveys the tomatoes from one part of the apparatus to another. The belt conveyor may be replaced by trolleys, as to reduce the cost of the apparatus.

A machine 3 is provided with brushes, which work without water, and a machine 4 performs peeling by abrasion. The machine 4 may comprise a roller or basket machine for instance of the type already well known for the peeling of solid vegetables. A belt conveyor 5, conveys the tomatoes towards

tunnel 6, where their external surface is frozen again.

A conduit 7 is provided for collecting water from freezing device 1 and supplying the collected water to the peeling machine 4. The peeling machine 4 can, when necessary, even work only with the collected water, if no water at ambient temperature is available.

The apparatus illustrated in the accompanying drawing functions as follows.

In freezing device 1, the tomatoes are frozen, together with their peel, to about −30°C. They are then conveyed by means of the belt conveyor 2 to the machine 3 provided with brushes, which performs dry mechanical cleaning. Finally, the belt conveyor supplies the tomatoes to the peeling machine 4, which works by abrasion. In this machine, the tomatoes are treated in the same way as potatoes, carrots, or other similar solid vegetables are treated during conventional processes, as the tomatoes are as solid when frozen as the above mentioned vegetables are normally.

As the surface of the tomatoes might become soft, because of the abrasion performed by the peeling machine 4 and because of the length of the process, they are passed through the tunnel 6 to freeze them again. The energy required for this refreezing is relatively low.

During peeling in the peeling machine 4, it is necessary to use a certain quantity of water at ambient temperature. This water can be supplied from the freezing machine 1, by means of the conduit 7, as well as from any other suitable source.

WHAT I CLAIM IS:—

1. A method of producing peeled frozen tomatoes, comprising the steps of freezing the tomatoes, cleaning the tomatoes by dry-brushing, peeling the tomatoes by abrasion, and refreezing the surfaces of the tomatoes.

2. An apparatus for performing the method of claim 1, comprising a freezing device, a machine for dry-brushing connected to the freezing device by first conveyor means, a machine for peeling by abrasion connected to the dry-brushing machine by second conveyor means, and a tunnel arranged to perform refreezing of the tomato surfaces.

3. An apparatus as claimed in claim 2, in which the machine for peeling by abrasion is arranged to receive water at ambient temperature as well as water collected from the freezing device and supplied through a water conduit.

4. A method of producing peeled frozen tomatoes, substantially as hereinbefore described with reference to the accompanying drawing.

5. An apparatus for performing the method of claim 1, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

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COMPLETE SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale